CLAIMS

What is claimed is:

1. A heat sink structure with embedded electronic components, comprising:

a heat sink having an upper surface and a lower surface, with a plurality of recessed cavities formed on the lower surface of the heat sink; and

at least one electronic component embedded in at least one of the recessed cavities of the heat sink, allowing at least one of the other recessed cavities to receive at least one active component.

2. The heat sink structure with embedded electronic components of claim 1, wherein the heat sink is further formed with at least one through hole at a position for receiving the active component.

3. The heat sink structure with embedded electronic components of claim 1, wherein a continuous protruded portion is formed at the periphery on the lower surface of the heat sink.

4. The heat sink structure with embedded electronic components of claim 1, wherein the electronic component is an active or passive component.

5. The heat sink structure with embedded electronic components of claim 4, wherein the passive component is selected from the group consisting of resistor, capacitor, inductor and chip-type passive component.

6. The heat sink structure with embedded electronic components of claim 1, wherein the active component is a semiconductor chip.

7. The heat sink structure with embedded electronic components of claim 4, wherein the active component is a semiconductor chip.

8. The heat sink structure with embedded electronic components of claim 1, wherein the heat sink is made of a highly conductive and rigid material.

9. A semiconductor package with a heat sink structure with embedded electronic components, comprising:

a substrate having a first surface and a second surface;

at least one semiconductor chip mounted on and electrically connected to the first surface of the substrate;

a heat sink having an upper surface and a lower surface, with the lower surface attached to the first surface of the substrate and formed with a plurality of recessed cavities thereon, allowing at least one electronic component to be embedded in at least one of the recessed cavities and the at least one semiconductor chip to be received in at least one of the other recessed cavities; and

a plurality of conductive elements mounted on the second surface of the substrate for electrically connecting the semiconductor package to an external device.

10. The semiconductor package of claim 9, wherein the heat sink is further formed with at least one through hole at a position for receiving the semiconductor chip.

11. The semiconductor package of claim 9, wherein a continuous protruded portion is formed at the periphery on the lower surface of the heat sink.

12. The semiconductor package of claim 9, wherein the electronic component is an active or passive component.

13. The semiconductor package of claim 9, wherein a resin compound is filled in the space between the heat sink and the substrate.

14. The semiconductor package of claim 9, wherein the heat sink is made of a highly conductive and rigid material.